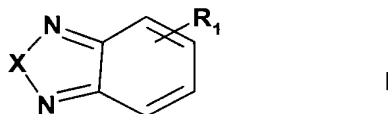


Amendments to the Claims:

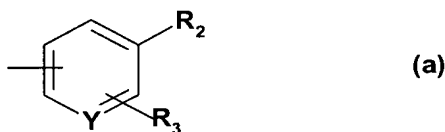
This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A compound of formula I



wherein X is O or S, R₁ is 5-(2-fluoro-ethylamino)-thiazol-2-yl, 5-(2-¹⁸F-ethylamino)-thiazol-2-yl or a group of formula (a)



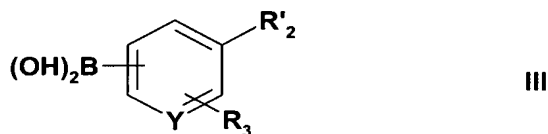
wherein Y is CH or N, R₂ is NHCH₃, NH¹¹CH₃, N(CH₃)¹¹CH₃, N(CH₃)₂, N(¹¹CH₃)₂, NH(CH₂)_nF, NH(CH₂)_n¹⁸F, N(CH₃)-(CH₂)_nF, N(CH₃)-(CH₂)_n¹⁸F, O-(CH₂)_nF, O-(CH₂)_n¹⁸F, CONH(CH₂)_nF or CONH(CH₂)_n¹⁸F (n being in each case 2 to 4) and R₃ is hydroxy, (C1-4)alkoxy, hydrogen or nitro, in free base or acid addition salt form.

2. (Currently amended) A process for the production of a compound of formula I as defined in claim 1 and its acid addition salts, comprising the steps of

a) for the production of a compound of formula I which contains no ¹¹C or ¹⁸F atom, reacting a compound of formula II



wherein X is as defined in claim 1 and Hal is Cl, Br or I, with 5-(2-fluoro-ethylamino)thiazolyl-2-boronic acid or a compound of formula III



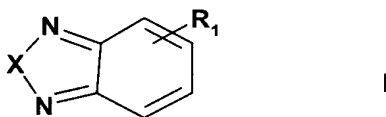
wherein Y and R₃ are as defined above and R'₂ is a group R₂ as defined above which contains no ¹¹C or ¹⁸F atom, or

- b) for the production of a compound of formula I wherein R₁ is 5-(2-¹⁸F-ethylamino)-thiazol-2-yl, reacting a compound of formula I wherein R₁ is 5-(2-mesyloxy-ethylamino)-thiazol-2-yl or 5-(2-tosyloxy-ethylamino)-thiazol-2-yl with ¹⁸F[⊖], or
- c) for the production of a compound of formula I wherein R₂ is NH¹¹CH₃, N(CH₃)¹¹CH₃ or N(¹¹CH₃)₂, reacting a compound of formula I wherein R₂ is NH₂ or NHCH₃ with ¹¹CH₃I, or
- d) for the production of a compound of formula I wherein R₂ is NH(CH₂)_n¹⁸F, N(CH₃)-(CH₂)_n¹⁸F, O-(CH₂)_n¹⁸F or CONH(CH₂)_n¹⁸F, reacting a compound of formula I wherein R₂ is, respectively, NH(CH₂)_nOTs or NH(CH₂)_nOMs, N(CH₃)-(CH₂)_nOTs or N(CH₃)-(CH₂)_n-OMs, O-(CH₂)_nOTs or O-(CH₂)_n-OMs, or CONH(CH₂)_nOTs or ONH(CH₂)_nOMs, with ¹⁸F[⊖],

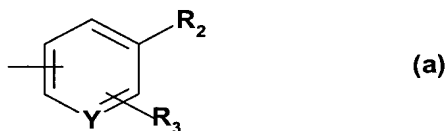
and recovering the resulting compound of formula I in free base form or in acid addition salt form ~~of an acid addition salt~~.

3. (Original) A composition for labeling histopathological structures in vitro or in vivo, comprising a compound of formula I as defined in claim 1, in free base or acid addition salt form.
4. (Withdrawn) A method for labeling histopathological structures in vitro or in vivo, comprising contacting brain tissue with a compound of formula I as defined in claim 1, in free base or acid addition salt form.
5. (Withdrawn) A method according to claim 4, for labeling β-amyloid deposits.

6. (Withdrawn) A method according to claim 4, comprising administering the compound of formula I to a patient.
7. (Withdrawn) A method according to claim 4, comprising the further step of determining whether the compound of formula I labeled the target structure.
8. (Withdrawn) A method according to claim 7, comprising observing the target structure labeled with a non-radioactive compound of formula I, using fluorescence microscopy.
9. (Withdrawn) A method according to claim 7, comprising observing the target structure labeled with a radioactive compound of formula I, using positron emission tomography (PET).
10. (Withdrawn) A method according to claim 4 for diagnosing Alzheimer's disease.
11. (Withdrawn) A method according to claim 10, for monitoring the effectiveness of a therapeutic treatment of Alzheimer's disease.
12. (Withdrawn) A method according to claim 4, for detecting histopathological hallmarks of Alzheimer's disease.
- 13-15. (Cancelled)
16. (New) A package comprising a compound of formula I,

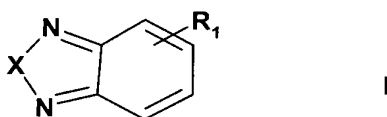


wherein X is O or S, R₁ is 5-(2-fluoro-ethylamino)-thiazol-2-yl, 5-(2-¹⁸F-ethylamino)-thiazol-2-yl or a group of formula (a)

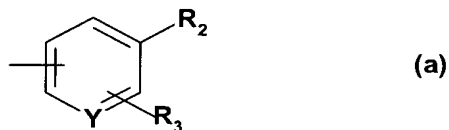


wherein Y is CH or N, R₂ is NH₂ or NHCH₃, and R₃ is hydroxy, (C1-4)alkoxy, hydrogen or nitro, in free base or acid addition salt form,
together with instructions for the production of the compound of formula I wherein R₂ is NH¹¹CH₃, N(CH₃)¹¹CH₃ or N(¹¹CH₃)₂ by reaction of the starting material with freshly prepared ¹¹CH₃I.

17. (New) A package comprising as starting material a compound of formula I,



wherein X is O or S, R₁ is 5-(2-fluoro-ethylamino)-thiazol-2-yl, 5-(2-¹⁸F-ethylamino)-thiazol-2-yl or a group of formula (a)



wherein Y is CH or N, R₂ is NH(CH₂)_nOTs, NH(CH₂)_nOMs, N(CH₃)-(CH₂)_nOTs, N(CH₃)-(CH₂)_nOMs, O-(CH₂)_nOTs, O-(CH₂)_n-OMs, CONH(CH₂)_nOTs or ONH(CH₂)_nOMs (n being in each case 2 to 4), wherein OMs corresponds to mesylate and OTs to tosylate, and R₃ is hydroxy, (C1-4)alkoxy, hydrogen or nitro, in free base or acid addition salt form,
together with instructions for the production of the compound of formula I wherein R₂ is NH(CH₂)_n¹⁸F, N(CH₃)-(CH₂)_n¹⁸F, O-(CH₂)_n¹⁸F or CONH(CH₂)_n¹⁸F by a suitable reaction cascade of the starting material with ¹⁸F⁺.